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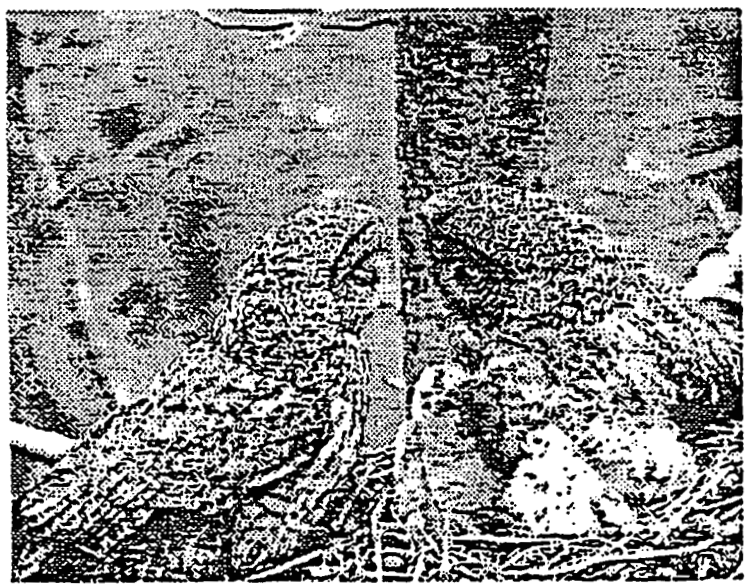

Monthly Report for November 1992

Rocky Flats Office

December 20, 1992

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EXECUTIVE SUMMARY

SIGNIFICANT ACTIVITIES AND ACHIEVEMENTS FOR OCTOBER 1992

Work on the Operable Unit (OU) 1 draft Corrective Measures Study/Feasibility Study (CMS/FS) is underway. Technical Memorandum (TM) #10, Remedial Action Objectives, is being finalized. TM #10 was developed to meet remedial action objectives, preliminary remediation goals, chemical-specific ARARs to enable progress on the CMS/FS.

In a November 5, 1992, letter to the Department of Energy (DOE), the Environmental Protection Agency (EPA) and the Colorado Department of Health (CDH) approved the extension request for the OU 1 Final Resource Conservation and Recovery Act (RCRA) Facility Investigation/Remedial Investigation (RFI/RI) Report. This deliverable was scheduled to be submitted on January 4, 1993, but was approved for an extension to April 4, 1993.

Discharge of OU 1 Interim Remedial Action (IRA) Effluent Tank 207 began October 26, 1992, and was completed on November 3, 1992 (97,500 gallons). The water was treated through the UV/Peroxide unit prior to discharge to remove any minute residual organics that might have leached into the water from the tank coatings. Rocky Flats Office (RFO) and the regulatory agencies have granted permission to allow future discharge from effluent tanks without retreatment. The organic contamination from the tank coatings has been proven to be well below acceptable discharge levels.

EG&G has resumed work on the OU 2 Phase II Draft RFI/RI Report and Risk Assessment Technical Memorandum (TM) as well as a technical memorandum to locate the Bedrock Confirmation/Monitoring wells. EG&G and DOE presented a revised bedrock scope of work to EPA and CDH on November 9, 1992. Initial reaction by the agencies was positive. DOE will have a revised schedule on December 2, 1992, and will formally ask for an extension of the IAG milestones and present the new schedule for OU 2 Assessment to the regulatory agencies on December 16, 1992.

Significant progress was made in the OU 4 Assessment including delivery of the Vadose Zone Investigation TM to EPA and CDH on November 16, 1992; completion of the radiological survey for Pond 207 A ; the alpha survey was conducted in the interceptor trench system area; and surveying-in of the sample and borehole locations was initiated for the buffer zone area of OU 4.

In OU 5, the first sampling event of TM 1, Revised Network Design -- Field Sampling Plan, was completed and water sediment samples were collected. The drill rig, which arrived on November 2, 1992, was inspected, and drilling began below C1 Pond on November 3, 1992. Three wells, one below C1 pond and two below C2 pond, were completed on November 6, 1992. The Draft TM #3, Surficial Soil Sampling at IHSS 115, was completed November 20, 1992. The Draft TM#7, Soil Borings-Ash Pits, was completed on November 27, 1992.

In OU 6, sediment sampling is complete in the ponds (IHSS 142). Five alluvial monitoring wells were installed in IHSSs 167.1, 167.3, 166.2, 166.3 and 142.9, and the soil borings were completed in IHSS 167. A November 12, 1992, meeting was held among DOE, EPA, and CDH. The meeting was productive as the quality of the OU 6 RFI/RI was increased while costs were reduced.

The OU 8 Final Phase I RFI/RI Work Plan was completed on November 25, 1992, for delivery to EPA and CDH on December 1, 1992, to meet the extended IAG milestone due date.

PROBLEMS AND PROGRAMMATIC ISSUES

Procurement Status

As a result of the October 29, 1992, memorandum from the Rocky Flats Environmental Restoration Quality Action Team (QAT), the EG&G Deputy General Manager requested that the QAT Procurement-related recommendations be reviewed and put into an action plan. To accomplish this, a Procurement QAT Working Group was formed with representatives from Procurement, Environmental Restoration, and Waste Management. The working group has scheduled its first meeting for December 2, 1992, to address the recommendations made by the QAT.

EG&G Procurement continues to offer their 2-hour informational briefing on the Master Task Subcontract (MTS) to any interested group. The briefing was presented twice in October and again on November 5, 1992, at Interlocken. To date, over 60 Environmental & Waste Management (E&WM) personnel have attended the briefing. The same briefing is scheduled to be presented to the RFO Environmental staff on December 3, 1992.

After some delay, the Construction and Engineering Branch of Procurement resumed work on the E&WM Architectural & Engineering (A&E) MTS. The current schedule projects release of the RFP by December 24, 1992, and subcontract award by March 15, 1993. This action corresponds with a recommendation from the October 29, 1992, QAT Memorandum.

Other

The November 5, 1992 letter to DOE, from EPA and CDH denied all OU 1 downstream milestone extension requests except the Final RFI/RI Report. Currently, the Inter-Agency Agreement (IAG) milestone date for the Draft CMS/FS-EA is March 31, 1992; the schedule petition requested a date of June 30, 1992. DOE and EG&G met on November 13, 1992, with the regulatory agencies to discuss the schedule extension request that was denied by the agencies. Technical arguments were presentedto EPA and CDH on the successive decisions required to perform the Feasibility Study (FS) work correctly. The regulatory agencies were adamant that regardless of technical considerations, time lost on the RI was to be made up during the FS. Another letter requesting a 90-day extension for the FS will be sent to the agencies clarifying DOE's concerns.

Delaying the OU 2 bedrock field work until FY93 has resulted in the OU 2 Corrective Measures Study/Feasibility Study (CMS/FS) being delayed 15 to 22 months. These delays will impact the total OU 2 milestone schedule.

Significant schedule impacts have resulted in OU 3 from the slow pace of obtaining Use Agreements from offsite landowners. The surficial soil sampling has been delayed six to seven

weeks because of inaccessibility to field sampling areas. Impacts to future IAG milestones and new schedules are being evaluated.

The OU 4 Draft Phase I RFI/RI Report which is scheduled for submittal on May 21, 1993, and the OU 4 Final Phase I RFI/RI Report which is scheduled for submittal on October 18, 1993 will be delayed by approximately 12 to 14 months. An additional 6 downstream milestones milestones may be impacted. DOE has discussed the OU 4 projected missed milestones with the regulatory agencies. DOE/HQ is currently reviewing several "restructuring" options for the Solar Ponds Program.

DOE, EPA and CDH have informally discussed the possibility of integrating characterization activities within the industrial area (IA). This concept would impact scheduled field work activities in OUs 8, 9, 10, 12,13, 14, and 15.

NEAR-TERM IAG MILESTONES

OU	Milestone Description	Schedule Completion	Actual Completion
08	Submit Final Phase I RFI/RI Work Plan	01 Dec 92*	01 Dec 92

**EPA and CDH approved an extension on the OU 8 Final Phase I RFI/RI Work Plan from September 28, 1992, to December 1, 1992*

SECTION 1. INTRODUCTION

This monthly status report presents the current status and technical achievements of the Rocky Flats Environmental Restoration Program for November 1992. This program implements the IAG between DOE, EPA, andCDH to investigate, assess, and remediate, where necessary, contaminated areas at or adjacent to DOE's Rocky Flats Plant in Golden, Colorado. This agreement was signed on January 22, 1991. The work is being performed for DOE by EG&G Rocky Flats, Inc.

Technical progress, schedule status, and milestone status for each Operable Unit (OU) as well as other program activities are presented in Section 2. Section 3. contains the schedules for routine environmental sampling as required by Paragraph 210 of the IAG. Section 4. contains a list that identifies the contractors and subcontractors performing work on the program as required by Paragraph 13 of the IAG.

SECTION 2. PROJECT STATUS

2.1 OU 1 - 881 HILLSIDE AREA

The alluvial ground water at the 881 Hillside Area, located north of Woman Creek in the southeast section of RFP, was contaminated in the 1960s and 1970s with solvents and radionuclides. The area is almost 2 miles from the eastern, outer edge of the plant's buffer zone at Indiana Street. The various Individual Hazardous Substance Sites (IHSSs) that make up OU 1 were being investigated and treated as high-priority sites because of potentially elevated concentrations of organic compounds in the near-surface ground water and the proximity of the contamination to a drainage system leading to an offsite drinking water supply. The selected Interim Remedial Action (IRA) at OU 1 involved construction of an underground drainage system called a french drain that intercepts and contains near-surface ground water flowing from the OU 1 area. The near-surface water is treated at the 891 treatment facility, designed for this purpose, and released on-site into the South Interceptor Ditch alongside Woman Creek. IRA construction was completed in April 1992. The Remedial Investigation and Feasibility Study (RI/FS) to determine the final remedial action are continuing in parallel with the IRA.

2.1.1 OU 1 ASSESSMENT

Scope of Work Changes This Period

The survey that will be conducted on the 881 Hillside is expected to require approximately 220 hours of support from various RFP departments, all of which is new work and not in existing budgets.

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Phase III RFI/RI Work Plan	06 Feb 90
Submit Final Phase III RFI/RI Work Plan	31 Oct 90
Submit Draft Phase III RFI/RI Report	28 Oct 92

November Work Activity Status

Work on the draft CMS/FS is underway. Technical Memorandum (TM) #10, Remedial Action Objectives, is being finalized. TM #10 has been developed to meet the IAG schedule. However, important buy-in from EPA and CDH was not available in this time frame, so there is a possibility that major portions of the document may need revision. DOE project management has concurred with proceeding in order to maintain the schedule.

In a November 5, 1992, letter, EPA and CDH denied all downstream extension requests except the Final RFI/RI Report. This deliverable was scheduled to be submitted on January 4, 1993, but was approved for an extension to April 4, 1993. Currently, the IAG milestone date for the Draft CMS/FS-Environmental Assessment (EA) is March 31, 1992; the schedule petition requested a date of June 30, 1992.

DOE and EG&G met on November 13, 1992, with the regulatory agencies to discuss the schedule extension request that was

denied by the agencies. Technical arguments were presented on the successive decisions required to do the FS work correctly. The regulatory agencies were adamant that regardless of technical considerations, time lost on the RI was to be made up during the FS. Another letter requesting a 90-day extension for the FS will be sent to the agencies.

Planned Work for December

Continue preliminary work on the Draft CMS/FS Report, which is scheduled for submittal on March 31, 1993.

Complete additional surveys for hotspots on the 881 Hillside.

Problems

Plutonium has been detected in soil in the area adjacent to where the uranium rings were found in March/April 1992. EG&G is evaluating the potential impact of this find to the just-completed Draft RI Report. On November 30, a posting of a plutonium "hotspot" was completed. This "hotspot" was not detected during the RI field work because of the small, discrete area contaminated. It was detected as a result of random surveying on the 881 Hillside during construction work. A plan is being finalized to conduct further surveys to verify that no other "hotspots" exist on the Hillside. The plan is expected to be finalized in early December and the field work will be conducted as soon as weather permits. (Instrumentation is inaccurate in wet/snow conditions).

Open Items

Approval of the OU 1 IAG schedule extension by EPA and CDH for the FS is pending.

2.1.2 OU 1 REMEDIATION

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Proposed IM/IRA Decision Document	18 Sep 89
Submit Proposed IM/IRA Decision Document	06 Oct 89
Submit Final IM/IRA Decision Document	05 Jan 90
Begin Phase I-A IM/IRA Construction	15 Jan 90
Restart Phase I-A IM/IRA Construction (after shutdown)	20 Jun 90
Begin Phase I-B IM/IRA Construction (ahead of schedule)	28 Sep 90
Submit IM/IRA Implementation Document	22 Feb 91
Begin Phase II-A IM/IRA Construction	01 Apr 91
Begin IM/IRA Testing	05 Aug 91
Begin Phase II-B IM/IRA Construction	03 Sep 91
Complete IM/IRA Construction (Bldg. 891)	02 Mar 92
Complete IM/IRA Construction (French Drain)	13 Apr 92

November Work Activity Status

Discharge of Effluent Tank 207 began October 26, 1992, and was completed on November 3, 1992 (97,500 gallons). The water was treated through the UV/Peroxide unit prior to discharge to remove any minute residual organics that might have leached into the water from the tank coatings. RFO and the regulatory agencies have granted permission to allow future discharge from effluent tanks without retreatment. The organic contamination from the tank coatings has been proven to be well below acceptable discharge levels.

Treated effluent is being stored in effluent tank T206, which is approximately two-thirds full. The remaining water is being held in effluent tanks awaiting results of sample analysis. Effluent tanks T205, and T207 are empty.

Total Treated Ground water to date: approx 658,000 gallons.
Total Discharged Treated Ground water: approx 602,500 gallons.

Comments were resolved and incorporated into the Final Systems Operations Test and Optimization Test Report for operations of the 891 treatment facility. The final report was completed on November 19, 1992. Revisions are being incorporated into the first draft of the Operations and Maintenance Manual for the OU 1 treatment facility.

When the french drain was built on the 881 hillside, much of the vegetation was destroyed. At the request of EPA, a revegetation project was implemented, and the initial phase of seeding was very successful. During November the final phase of revegetation was completed. A native seed mix was spread over the entire hillside. The dying barley that was planted early in the summer for erosion control will serve as a mulch for the new vegetation.

DOE has requested additional work on the 881 hillside. This work includes installing a flow meter on collection well #CW001, Building 881 footing drain piping modifications, collection well piping modifications, and additional revegetation on the 881 hillside including wetland expansion and tree planting.

Planned Work for December

Continue operations.
Discharge of treated effluent TK 206.
Finalization of Building 891 Operations Maintenance Manual.

Problems

The water supply to Building 891 was shut off on November 6, 1992, as a result of a leaking underground pipe in the 800 area. Service was restored on November 13, 1992. A delay in the cleaning of tank 205 was the only impact resulting from this leak and subsequent water shut-off. Tank 205 had been removed from service the week before to allow for a routine internal inspection to check the tank's coating.

Open Items

None

2.2 OU 2 - 903 PAD, MOUND, AND EAST TRENCHES

The contamination at the 903 Pad and Mound areas is largely attributed to the storage in the 1950s and 1960s of waste drums that corroded over time, allowing hazardous and radioactive material to leak into the surrounding soil. Additional contamination may have resulted from wind dispersion during drum removal and soil movement activities. The East Trenches Area was used for disposal of plutonium- and uranium-contaminated waste and sanitary sewage sludge from 1954 to 1968. Two areas adjacent to the trenches were used for spray irrigation of sewage treatment plant effluent, some of which may have contaminants that were not removed by the treatment system.

An IM/IRA provides for surface water in source areas of contamination to be collected, treated, and discharged to the surface water drainage. Operation of a field-scale treatability unit for the South Walnut Creek drainage began in May 1991. The effectiveness of the treatment process will be evaluated at three locations: the entrance to the treatment facility, several points within the facility, and the discharge point. After completion of the field-scale treatability tests, the unit is anticipated to remain in service until the final remedial action is operational. The RI and FS are continuing in parallel with the IRA.

A second IM/IRA was established in late-1991. This Proposed Subsurface Investigation Interim Measure/Interim Remedial Action Plan/Environmental Assessment (IM/IRAP/EA) is north of Woman Creek and encompasses the 903 Pad, the Mound Area, and the East Trenches Area of OU 2. This IM/IRAP/EA identifies and evaluates interim remedial actions for removal of residual free-phase VOC contamination from three distinct subsurface environments at OU 2. Each of the proposed VOC removal actions involve *in situ* vacuum-enhanced vapor extraction technology. The interim remedial actions are proposed for the collection of information that will aid in the selection and design of final remedial actions that address subsurface, residual free-phase VOC contamination at OU 2.

2.2.1 OU 2 Assessment

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Phase II RFI/RI Work Plan (Alluvial)	21 Dec 89
Submit Final Phase II RFI/RI Work Plan (Alluvial)	12 Apr 90
Submit Draft Phase II RFI/RI Work Plan (Bedrock)	05 Feb 91
Submit Final Phase II RFI/RI Work Plan (Bedrock)	02 Jul 91
Submit Subsurface Site I Draft Test Plan	29 Oct 92

November Work Activity Status

Phase II RFI/RI Bedrock Report. EG&G has resumed work on the Draft RFI/RI Report and risk assessment Technical Memorandum as well as a TM to locate the Bedrock Confirmation/Monitoring wells. DOE and EG&G presented a revised bedrock scope of work to EPA and CDH on November 9, 1992. Initial reaction by the agencies was positive. DOE will

have a revised schedule on December 2, 1992, and will formally ask for an extension of the IAG milestones and present the new schedule for continued OU 2 Assessment to the regulatory agencies on December 16, 1992.

Subsurface IM/IRA. EPA, CDH, and the Technical Review Group (TRG) comments on the Pilot Test Plan, In Situ Volatilization Technology, Subsurface IM/IRA were received on November 30, 1992. An internal EG&G project management plan was developed for implementation and coordination of engineering functions. A draft listing of the specification for fabrication of the Vapor Extraction Unit is also being developed. The soil gas survey, for which an MTS subcontractor is being procured is scheduled to be performed during January 1993.

The final version of this first test plan is scheduled for submittal to EPA and CDH on January 12, 1993. Inspection and system startup to begin pilot testing in the field is scheduled for September 15, 1993.

Planned Work for December

Presentation of a revised OU 2 IAG milestone schedule to EPA and CDH.

Problems

Delaying the bedrock field work until FY93 has resulted in the CMS/FS being delayed 15 to 22 months. These delays will impact the total OU 2 milestone schedule.

Open Items

Evaluation of an extended OU 2 IAG milestone schedule to be submitted December 16 by EPA and CDH.

2.2.2 OU 2 Remediation

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Proposed IM/IRA Decision Document	19 Jun 90
Submit Proposed Plan IM/IRA Decision Document	18 Sep 90
Submit Draft Responsiveness Summary	13 Dec 90
Submit Final Responsiveness Summary and Final IM/IRA Decision Document	11 Jan 91
Field Treatability Test System Installation Complete	10 May 91
Begin Field Treatability Testing (Carbon System)	13 May 91
Submit Draft Treatability Test Report (Phase I GAC)	01 Apr 92
Complete IM/IRA Construction (radionuclides removal system)	24 Apr 92

Begin Field Treatability Testing (radionuclides removal system) 27 Apr 92
Submit Final Treatability Test Report (Phase I GAC) 02 Jun 92

November Work Activity Status

The Surface Water Field Treatability Unit (FTU) collected, treated, and discharged approximately 550,000 gallons of surface water during the month of November. Operation has been normal and without problems. The operating subcontractor continues to feed 7.5 ppm of iron to the first reaction tank and maintains a pH of 9.0 to 9.5 in the second reaction tank with lime.

The last membrane cleanings were done on November 7 and 21, 1992, and were successful. The combination of sulfuric acid and hydrogen peroxide is working very well as the cleaning agent for the microfilter.

The sludge holding tank in the Radionuclide Removal Trailer #1 is nearly full. This would bring the total to five drums since October 1, 1992. White drums (used for "rad" waste) are now available and will be used as containers for the new sludge. The two cargo containers (CC1 and CC2) are located at the FTU site and are controlled in accordance with the Nuclear Material Safeguards Manual section NMS MC-010. CC2 will be used to store processed sludge drums and will serve as the OU2 90-Day Storage Area. CC1 will be used to store empty white drums.

Planned Work for December

Continue collecting and treating water in the FTU.

Problems

None

Open Items

None

2.3 OU 3 - OFFSITE AREAS

OU 3 can be divided into two categories based on two main activities. The IAG directs activities according to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This involves assessment of contamination in offsite areas also referred to as IHSSs: Contamination of the Land Surface (IHSS 199), Great Western Reservoir (IHSS 200), Standley Lake (IHSS 201), and Mower Reservoir (IHSS 202). The second category responds to a 1985 out-of-court lawsuit settlement, McKay v. U.S., which directed that the surface soil contamination be remediated. Remedial activities in compliance with the Settlement Agreement (deep disc plowing) began in 1985. The disturbance resulting from remediation is being revegetated with mediocre success. The overall schedule for this activity is determined by the year-to-year success of the revegetation effort and requirements of the landowners.

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Past Remedy Report	26 Oct 90
Submit Draft Historical Information/ Preliminary Health Risk Assessment Report	09 Nov 90
Submit Final Past Remedy Report	02 Apr 91
Submit Final Historical Information/ Preliminary Health Risk Assessment Report	16 Apr 91
Submit Draft Phase I RFI/RI Work Plan	10 Jul 91
Submit Final Phase I RFI/RI Work Plan	06 Dec 91

November Work Activity Status

Offsite landowners are still being contacted for surface soil sampling sites. Several landowners have declined access which requires identifying a new sampling location and landowner to contact for access.

A Draft Sampling and Analysis Plan for the Wind Tunnel Study is under review. This plan will be incorporated into a technical memorandum to be submitted to EPA and CDH for approval prior to the start of the associated field work.

Planned Work for December

Continue efforts to obtain signed land use agreements from private landowners.

Problems

Significant schedule impacts have resulted from the slow pace of obtaining Use Agreements from offsite landowners. The surficial soil sampling has been delayed 6 to 7 weeks because of inaccessibility to field sampling areas. Impacts to future IAG milestones and new schedules are being evaluated.

Open Items

None

2.4 OU 4 - SOLAR EVAPORATION PONDS

OU 4 is made up of five solar evaporation ponds: 207A, 207B series (north, center, south), and 207C. Beginning in the late 1950s, the ponds were used to store and evaporate low-level radioactive process water containing high concentrations of nitrates and treated acidic wastes. The sludge and sediments that resulted from the process were periodically removed and disposed of at the Nevada Test Site.

As technology improved through the early 1960s and 1970s, the ponds were relined with various upgraded materials. However, leakage from the ponds into the soil and ground water was detected. Interceptor trenches were installed in 1971 to collect and recycle ground water contaminated by the ponds and to prevent natural seepage and pond leakage from entering North Walnut Creek. In 1981, these trenches were replaced by the current, larger, interceptor trench system which recycles approximately four million gallons of ground water a year back into the solar evaporation ponds.

No additional process water has been pumped into the ponds since 1983. The interceptor trench system collects and recycles ground water into the solar evaporation ponds continuously. Presently, only the 207B north solar evaporation pond receives contaminated ground water collected by the interceptor system. The ponds are RCRA interim status regulated units that are currently under closure. In order to proceed and characterize the level of contamination at the site, approximately eight million gallons of excess liquid must be removed from the ponds. The removal of this liquid and the redirection and treatment of the ground water by the interceptor trench system are the focus of the final IM/IRA dated April 1992, which began construction in May 1992.

The April 1992 IM/IRA was developed as a regulatory agency requirement that was out of scope from the tasks outlined in the Interagency Agreement (IAG). DOE attempted to modify an existing permit for water removal and treatment for liquids in the solar ponds and ground water collected by the intercepter trench system, but the regulatory agencies rejected permit modification and required development of an IM/IRA to document operation and use of the proposed water treatment system. The development and implementation of this IM/IRA precedes the IAG scheduled Phase I RFI/ RI fieldwork.

There is an IM/IRA scheduled in the IAG that will be completed after results are collected and analyzed from the Phase I RFI/RI fieldwork. The first draft of the IAG IM/IRA is scheduled for delivery in April 1994.

2.4.1 OU 4 ASSESSMENT

Scope of Work Changes This Period	None	
Technical Approach Changes This Period	None	
IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work Plan Submit Final Phase I RFI/RI Work Plan	08 Jun 90 26 Nov 91
November Work Activity Status	The Vadose Zone Investigation TM was delivered to EPA and CDH on November 16, 1992. RFP has requested comments from the regulatory agencies and conditional approval to implement the vadose zone plan.	

The radiological survey for Pond 207 A was completed over the weekend of November 14 and November 15, 1992. The report from the radiological survey is in the process of being developed by EG&G Radiological Engineering. The conclusions from the radiological report will provide the appropriate criteria for personal protective equipment (PPE) and environmental characterization results.

The alpha survey was conducted in the interceptor trench system area the week of November 9, 1992. The radiological surveys are prerequisites to intrusive sampling.

Surveying sample locations and borehole locations was initiated on November 6, 1992, for the buffer zone area of OU 4.

Planned Work for December

Pond 207A geophysical survey completion.
Pond 207A start of drilling and sampling.

Problems

The Draft Phase I RFI/RI Report, which is scheduled for submittal on May 21, 1993, and the Final Phase I RFI/RI Report, which is scheduled for submittal on October 18, 1993, will be delayed by approximately 12 to 14 months. An additional six downstream milestones could be missed if modifications to work plans are not reschedlued.

Open Items

None

2.4.2 OU 4 REMEDIATION

Scope of Work Changes This Period

None

Technical Approach Changes

None

IAG Milestone Accomplishments

None

November Work Activity Status

Interim measures in progress are designed to prepare the ponds for the remedial action scheduled in the IAG. IM/IRA construction is scheduled to begin January 28, 1997, per the IAG.

Water Management. Water management activities continue. The transfer of A Pond to B Pond was completed October 23, 1992, 3 days ahead of schedule. A detailed, integrated schedule was developed for all water management activities. The schedule includes completing the installation of the evaporators and modular tanks as well as the tests and reviews prior to startup.

Consolidation of water and sludge in the A &B series ponds continued. The consolidation is intended to keep the A Pond dry, and empty B-center expeditiously, to allow drilling for the remedial investigation to begin.

Solar Ponds Program staff and Waste Operations staff met to begin a water management plan for Building 374. The plan is expected to allow for better control and reduction of waster water generation.

A draft plan for the entire program for Building 910 evaporators and related systems was completed. The plan addresses the component checkout tests and individual systems operations tests already conducted or tests in progress, as well as the Licon-supplied equipment Systems Operation (SO) tests and integrated SO tests.

During a working session, the EG&G Water Management Test Team, consisting of personnel from Facilities Project Management, Waste Management Systems Engineering, Environmental Design Engineering, Instrumentation and Control Engineering, Waste Processing Support, and the Solar Ponds Program Office, produced a work breakdown structure (WBS), a responsibility assignment matrix (RAM), and a logic diagram for the conduct of the integrated testing program for the Modular Tanks and Building 910. The final schedule for the program was produced on November 6, 1992.

Planned Work for December

Water Management
Fill temporary modular tanks to 15% completion.
Building 910 evaporator process control plan complete.
Building 910 emergency preparedness plan complete.
Generator engine repair.

Problems

Continued delays in the removal of pondcrete has delayed the RI Field Work which will impact remedial activities.

Open Items

RFP management is currently planning scheduling requirements.

2.5 OU 5 - WOMAN CREEK

This activity encompasses assessment and remediation in the Woman Creek drainage of 10 IHSSs: Original Landfill (IHSS 115); Ash Pits (IHSS 133.1 - 133.4); Incinerator (IHSS 133.5); Concrete Wash Pad (IHSS 133.6); Detention Ponds C-1 and C-2 (IHSS 142.10 and 142.11); Surface Disturbance (IHSS 209), southeast of Building 881. Two additional surface disturbances have been identified and are located, one south of the Ash Pits and a second west of IHSS 209. These last two sites have been included in the OU 5 Work Plan. Possible contamination in this operable unit was caused by landfill operations, storm water run-off into holding ponds, and ash-pit operations. Constituents in OU 5 are believed to include nitrates, plutonium, uranium, metals, beryllium, solvents, pesticides, oils, paints, and cleaners. Medias affected include soils, sediments, surface water, ground water, and air resuspension.

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

Submit Draft Phase I RFI/RI Work Plan	05 Apr 91
Submit Final Phase I RFI/RI Work Plan	30 Aug 91

The first sampling event of TM 1, Revised Network Design – Field Sampling Plan, was completed and water sediment samples were collected. This first sampling event is the synoptic sampling of Woman Creek at snow melt conditions. There are 12 surface water sites and 8 sediment sites to be sampled and flow measured.

The drill rig that arrived on November 2, 1992, was inspected and drilling commenced below C1 Pond on November 3, 1992. Three wells, one below C1 pond and two below C2 pond, were completed on November 6, 1992. All three holes were drilled 5 feet into bedrock, and all three were dry. A fourth well scheduled to be drilled below C1 pond is being delayed until consultation between DOE and United States Fish and Wildlife Service (USF&WS) has taken place. The C1 and C2 pond bottom sediment sampling, three locations in each pond, was successfully completed.

The Draft TM #3, Surficial Soil Sampling at IHSS 115, was completed November 20, 1992. The Draft TM#7, Soil Borings-Ash Pits, was completed on November 27, 1992.

Field work on IHSS 133 will be completed.
TM #3, Surficial Soil Sampling at IHSS 115, will be completed.

None

None

2.6 OU 6 - WALNUT CREEK

This activity encompasses assessment and remediation in the Walnut Creek Drainage of 21 IHSSs: the A-series Detention Ponds, Ponds A-1 through A-4 (IHSS 142.1 through 142.4 and 142.12); the B-series Detention Ponds, Ponds B-1 through B-5 (IHSS 142.5 through 142.9); the North, Pond, and South Area Spray Fields (IHSS 167.1, 167.2 and 167.3); the East Area Spray Field (IHSS 216.1), the Trenches A, B and C (IHSS 166.1, 166.2 and 166.3); the Sludge Dispersal Area (IHSS 141); the Triangle Area (IHSS 165), and the Old Outfall Area (IHSS 143). One additional site, the Soil Dump Area (IHSS 156.2), was transferred from OU 14 to OU 6 in 1991. Two IHSSs, Property Utilization And Disposal Yard (IHSS 170) and Property Utilization and Disposal Container Storage Facilities (IHSS 174) have been transferred from OU 6 to OU 10. Thirteen ground water monitoring wells will be installed throughout OU 6 to monitor the alluvial aquifer. Five bedrock ground water monitoring wells will be installed in the vicinity of North Walnut Creek during the OU 6 remedial investigation. To characterize the bedrock aquifer in the vicinity of the A-series ponds, up to 9 additional bedrock ground water monitoring wells may be installed.

Sediment samples will be collected from the Walnut Creek drainage where existing data are insufficient to adequately characterize the sediments. Sediment sampling has been proposed along each stream segment on North and South Walnut Creeks where additional characterization is needed. Based on a review of the data collected at the existing locations along the OU 6 drainage, there is sufficient information about the sediments in many parts of OU 6; therefore, the sampling locations specified in the RFI/RI Work Plan have been reduced in those areas.

The surface soil sampling has been modified for the Triangle Area (IHSS 165) and the Old Outfall Area (IHSS 143) so that the surface soil samples specified in the IAG will be obtained from the original surface of these units. This will entail boring through the overlying fill material down to the original surface to collect samples.

Scope of Work Changes This Period	None	
Technical Approach Changes This Period	None	
IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work Plan Submit Final Phase I RFI/RI Work Plan	19 Apr 91 16 Sep 91
November Work Activity Status	Sediment sampling is complete in the ponds (IHSS 142). Five alluvial monitoring wells were installed in IHSSs 167.1, 167.3, 166.2, 166.3 and 142.9. As per the RFI/RI Work Plan requirements, bedrock monitoring wells were not required in these IHSSs. The soil borings were completed in IHSS 167. A November 12, 1992, meeting was held among RFO, EPA, and CDH. An agreement was reached on TM #1 that all proposals in the TM were agreed to in principle. Several changes were made in the location of the proposed surface water sampling locations. Toxicity testing was added to the sampling. Five bedrock wells (with accompanying quarterly sampling) were deleted. The meeting was productive as the quality on the OU 6 RFI/RI was increased while costs were reduced.	

The environmental evaluation of fish in the ponds was hampered by the cold weather. Electric shock will be used to aid in the capture of the fish when the ice melts.

Planned Work for December

Continue drilling monitoring wells, and boring.
Continue soil sampling.
Perform radiation surveys and soil classification surveys.

Problems

Snow and windy weather during November delayed field work several days. No significant schedule impact is expected.

Open Items

Final approval of TM#1 by the regulatory agencies.

2.7 OU 7 - PRESENT LANDFILL

The Present Landfill - Operable Unit (OU) 7 is located north of the plant complex on the western edge of an unnamed tributary of North Walnut Creek and is comprised of two IHSSs. IHSS 114 includes landfill waste and leachate at the Present Landfill, soils beneath the landfill potentially contaminated with leachate, and sediments and water in the East Landfill Pond. IHSS 203 contains potentially contaminated soils at the Inactive Hazardous Waste Storage Area. A section of the Present Landfill located in the southwest corner was used between 1986 and 1987 as a temporary storage area for hazardous waste. The Present Landfill began operation in August of 1968 and was originally constructed to provide for disposal of RFP's nonradioactive and nonhazardous wastes. In September 1973, tritium was detected in leachate from the landfill. During the mid-1980s, extensive investigations were conducted on the waste streams (types) placed into the landfill; consequently, hazardous wastes/hazardous constituents were identified. Although currently operating as a nonhazardous sanitary landfill, the facility is considered an inactive hazardous waste disposal unit undergoing RCRA closure.

Scope of Work Changes This Period

None

Technical Approach This Period

None

IAG Milestone Accomplishments

Submit Draft Phase I RFI/RI Work Plan	08 Jun 90
Submit Final Phase I RFI/RI Work Plan	28 Aug 91

November Work Activity Status

All training sessions for subcontractor and drilling personnel have been completed including decontamination pad and radiation equipment training.

Field mobilization continued. Field personnel have begun staking out grids for soil gas, surficial soil, and CPT/BAT sampling. Sites were selected for upgradient monitoring wells.

Development of a TM for CDH is underway. The TM outlines changes to the Phase I RI Work Plan. Changes include: raising detection limits for the soil gas survey from 1 ppb to 1 ppm, replacing the open hole packer tests with slug tests in completed wells, and replacing some upgradient soil borings with surficial soil sampling within the landfill.

The conceptual model for the risk assessment is now under RFO review. The conceptual model delineates the pathways evaluated for Phase I from those to be evaluated during Phase II.

A question regarding the analysis of surface soils within the landfill to support the human health risk assessment was raised. The current Work Plan which received final approval from the agencies does not address surficial soils with the landfill (IHSS 114). Risk assessment personnel feel this type of sampling is necessary to support an analysis of upward path-

ways. The agencies indicate that this may be necessary but a minimal sampling effort will be acceptable. Risk assessment personnel are developing a sampling strategy consistent with this guidance.

Planned Work for December

Drilling will begin on IHSS 203.
A field tour is scheduled with EPA and CDH representatives.

Problems

None

Open Items

None

2.8 OU 8 - 700 AREA

The 24 IHSSs that constitute OU 8 encompass separate sites inside and around the production area of the Rocky Flats Plant. Contamination sources within the various IHSSs include above ground and underground tanks, equipment washing areas, and releases inside buildings that potentially affected areas outside the buildings. Contaminants from these sources may have been introduced into the environment through spills on the ground surface, underground leakage and infiltration, and in some cases through precipitation runoff. The chemical composition of the contaminants also varies widely among the IHSSs, ranging from low-level radioactive mixed wastes to nonradioactive organic and inorganic compounds.

During April 1992, 14 IHSSs were deleted from OU 8 and added to OU 9 as part of an IHSS realignment pursuant to Part 32, Paragraph 191 (Additional Work or Modification to Work) of the IAG. The IHSSs that were transferred to OU 9 include: 123.2-Valve Vault West of Building 707, 125-Holding Tank; 126.1 and 126.2-Out-of-Service Process Waste Tanks; 127-Low-Level Radioactive Waste Leak; 132-Radioactive Site - 700 Area Site #4; 146.1-146.6-Concrete Process Waste Tanks; 149-Effluent Pipe; 159-Radioactive Site Building 559. These IHSS changes were recommended by DOE in the OU 9 Phase I RFI/RI Work Plan approved by CDH and EPA in April 1992.

Scope of Work Changes This Period	It is anticipated that only non-intrusive assessment activities will be performed during fiscal year 1993 (FY93).	
Technical Approach Changes This Period	None	
IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work Plan	01 May 92
November Work Activity Status	The OU 8 Final Phase I RFI/RI Work Plan was completed on November 25, 1992, for scheduled delivery to EPA and CDH on December 1, 1992, to meet the extended IAG due date.	
Planned Work for December	Deliver the Final Phase I RFI/RI Work Plan to the regulatory agencies on December 1, 1992.	
Problems	Field work to complete the implementation of the work plan as scheduled was postponed. The two remaining IAG milestones scheduled in FY94 will require rescheduling.	
Open Items	Coordination of RI field work with the field work schedule for the Industrial Area OUs (8, 9, 10, 12, 13, 14, and 15) is under review.	

2.9 OU 9 - ORIGINAL PROCESS WASTE LINES

This activity involves characterizing a series of tanks and associated process waste lines. The Original Process Waste Lines (OPWL) consisted of a system of 57 designated pipe sections extending between 73 tanks and 24 buildings connected by 35,000 feet of buried pipeline that transferred process wastes from point of origin to on-site treatment plants. The system was placed into operation in 1952, and additions were made to the system through 1975. The original system was replaced over the 1975-1983 period by the new process waste system. Some tanks and lines from the original system have been incorporated into either the new process waste system or the fire water deluge collection system.

The original system is known to have transported or stored various aqueous process wastes containing low-level radioactive materials, nitrates, caustics, and acids. Small quantities of other liquids were also introduced in the system, including pickling liquor from foundry operations, medical decontamination fluids, miscellaneous laboratory liquids from Building 123, and laundry effluent from Buildings 730 and 778. The RFI/RI plan includes inspection and sampling of the Original Process Waste Lines (OPWL) tanks and pipelines that are accessible, and soil sampling to determine the extent of contamination in the vadose zone. The soil sampling will be performed by installing test pits and boring where known or suspected releases occurred, near pipe joints and valves, at approximately 200-foot intervals along the pipelines and by installing borings around the tanks that are outdoors. Soil characterization studies will determine the need for soil removal and/or treatment. The results of the RFI/RI will determine the need for interim and/or final remediation action.

During April 1992, 20 IHSSs were deleted from OUs 8, 10, 12, 13, and 15 and added to OU 9 as part of a IHSS realignment pursuant to Part 32, Paragraph 191 (Additional Work or Modification to Work) of the IAG. The IHSSs that were transferred to OU 9 include: 123.2-Valve Vault West of Building 707; 125-Holding Tank; 126.1 and 126.2-Out-of-Service Process Waste Tanks; 127-Low-Level Radioactive Waste Leak; 132-Radioactive Site - 700 Area Site #4, 146.1-146.6-Concrete Process Waste Tanks; 149-Effluent Pipe; 159-Radioactive Site Building 559; 124.1-124.3-Radioactive Liquid Waste Storage Tanks; 147.1-Process Waste Leaks/Maas Area; 122-Underground Concrete Tank; and 215-Tank T-40.

The above IHSSs all constitute part of the OPWLs and will be investigated and remediated as such. These IHSS changes were recommended by DOE in the OU 9 Phase I RFI/RI Work Plan approved by CDH and EPA in April 1992.

Scope of Work Changes This Period	It is anticipated that only non-intrusive assessment activities will be performed during fiscal year 1993 (FY93).	
Technical Approach Changes This Period	None	
IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work Plan	08 Jun 90
	Submit Final Phase I RFI/RI Work Plan	26 Nov 91
November Work Activity Status	Non-intrusive field work was rescheduled. During November a minimal level of effort was maintained in OU 9 for project management tasks.	

Planned Work for December	Work for December is predicated on the FY93 funding decision. If funding is allocated, procurement planning activities will occur in order to secure a field work subcontractor for non-intrusive activities.
Problems	None
Open Items	Coordination of RI field work with the field work schedule for the Industrial Area OUs (8, 9, 10, 12, 13, 14, and 15) is under review.

2.10 OU 10 - OTHER OUTSIDE CLOSURES

OU 10 is made up of 15 IHSSs scattered throughout the plant, which consist of various hazardous waste units. Six of the IHSSs are located in the protected area (PA), two are located in the buffer zone near the Present Landfill, and the remaining IHSSs are located near various buildings throughout the plant. The types of wastes identified at these sites range from pondcrete/saltcrete storage and drum storage to a property storage and utilization yard with waste spills. A Final Phase I RFI/RI Work Plan was completed in fiscal year 1992. The primary components of the RFI/RI Work Plan for OU 10 will be a field sampling plan (FSP), Baseline Risk Assessment Plan (BRAP), and an environmental evaluation (EE) Work Plan. Interim Remedial Action (IRA) is scheduled to begin in early 1998.

Three additional IHSSs were transferred from other OUs to OU 10 after the Draft RFI/RI Work Plan was completed in FY90. The Draft Work Plan was based on the Draft IAG, which was modified during final IAG negotiations. A contract modification was initiated to incorporate the three IHSSs into the Draft Work Plan and to perform general upgrades to the Plan.

During April 1992, IHSSs 124.1-124.3, the Radioactive Liquid Waste Storage Tanks were deleted from OU 10 and added to OU 9 as part of a IHSS realignment pursuant to Part 32, Paragraph 191 (Additional Work or Modification to Work) of the IAG. This change was recommended by DOE in the OU 9 Phase I RFI/RI Work Plan approved by CDH and EPA in April 1992.

Scope of Work Changes This Period	It is anticipated that only non-intrusive assessment activities will be performed during fiscal year 1993 (FY93).	
Technical Approach Changes This Period	None	
IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work Plan Submit Final Phase I RFI/RI Work Plan	27 Nov 91 01 May 92
November Work Activity Status	Work was performed planning the integration of field sampling programs for all the industrial area OUs.	
Planned Work for December	None	
Problems	None	
Opern Items	The field work schedule for the IA OUs (8, 9, 10, 12, 13, 14, and 15) is under review.	

2.11 OU 11 - WEST SPRAY FIELD

The West Spray Field is located within the Rocky Flats Plant buffer zone immediately west of the plant security area. The West Spray Field was in operation from April 1982 to October 1985. During operation, excess liquids from solar evaporation ponds 207-B North and Center (contaminated ground water in the vicinity of the ponds and treated sanitary sewage effluent) were pumped periodically to the West Spray Field for spray application. The spray field boundary covers an area of approximately 105.1 acres, 38.3 of which received direct application of hazardous waste. The RFI/RI process will entail field studies to investigate the presence or absence of hazardous constituents in soil and ground water.

Scope Changes This Period	None	
Technical Approach Changes This Period	None	
IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work Plan Submit Final Phase I RFI/RI Work Plan	08 Jun 90 02 Jan 92
November Work Activity Status	A draft proposal was made to streamline the field sampling in OU 11. This proposal calls for rescoping the field investigation to cover Phase I and Phase II objectives in a single event and to collect data adequate to support a risk assessment.	
Planned Work for December	A meeting among the parties will be held to assist in developing an acceptable field sampling scope.	
Problems	None	
Open Items	None	

2.12 OU 12 - 400/800 AREA

The 400/800 Area involves assessment and remediation of the 11 IHSSs at the 400/800 Area, including: Multiple Solvent Spills at the West and South Loading Dock Areas (IHSSs 116.1 and 116.2); Fiberglassing Areas North and West of Building 664 (IHSSs 120.1 and 120.2); Cooling Tower Ponds - Northeast, South, and West of Building 460 (IHSSs 136.1, 136.2, and 136.3); Process Waste Leak - Owen Area (147.2); Radioactive Site - South Area (IHSS 157.2); Acid Leaks (2) (IHSS 187); and Multiple Acid Spills (IHSS 189).

Assessment will consist of preparing a Phase I RFI/RI Work Plan, which will include both an Environmental Evaluation (EE) and a Human Health Risk Assessment (HHRA). After implementation of this Work Plan, fieldwork and sample analysis will be conducted, data will be analyzed, and the Phase I RI Report will be prepared. An FS to determine the best methods to remediate the area will be conducted as part of the assessment.

Remediation will consist of development and execution of a Remedial Action Plan based on results obtained during the assessment phase of the project. This process includes review and approval by EPA and CDH, followed by a Record of Decision (ROD), release to the public, and implementation of the plan.

During April 1992, IHSS 147.1 (the Process Waste Leaks-Maas Area), was deleted from OU 12 and added to OU 9 as part of a IHSS realignment pursuant to Part 32, Paragraph 191 (Additional Work or Modification to Work) of the IAG. This change was recommended by DOE in the OU 9 Phase I RFI/RI Work Plan approved by CDH and EPA in April 1992.

Scope of Work Changes This Period	None	
Technical Approach Changes This Period	None	
IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work Plan Submit Final Phase I RFI/RI Work plan	08 May 92 05 Oct 92
November Work Activity Status	The Final OU 12 RFI/RI Work Plan was submitted to EPA and CDH on October 5, 1992, the IAG milestone date. CDH and EPA have given conditional approval of the Work Plan pending resolution of certain outstanding technical issues regarding the field sampling plan and Standard Operating Procedures. CDH has requested that the final corrections to the Final Work Plan be completed and submitted no later than December 18, 1992. Work was performed planning the integration of field sampling programs for all the industrial area OUs.	
Planned Work for December	Final corrections to the Final Work Plan will be completed and submitted to CDH by December 18, 1992.	

Problems	None
Open Items	Coordination of RI field work with the field work schedule for the Industrial Area OUs (8, 9, 10, 12, 13, 14, and 15) is under review.

2.13 OU 13 - 100 AREA

Cleanup of the 100 Area involves the assessment and remediation of 14 IHSSs including: Chemical Storage - North, Middle, and South Sites (IHSSs 117.1, 117.2 and 117.3); Oil Burn Pit #1 (IHSS 128); Lithium Metal Destruction Site (IHSS 134); Waste Spills (IHSS 148); Fuel Oil Tank (IHSS 152); Radioactive Site - North Area (IHSS 157.1); Radioactive Site - Building 551 (IHSS 158); Waste Peroxide Drum Burial (IHSS 169); Solvent Burning Ground (IHSS 171); Valve Vault 12 (IHSS 186); Caustic Leak (IHSS 190); and the Hydrogen Peroxide Spill (IHSS 191).

Assessment will consist of preparing a Phase I RFI/RI Work Plan, which will include both an EE and an HHRA. After implementation of this Work Plan, fieldwork and sample analysis will be conducted, data will be analyzed, and the Phase I RI Report will be prepared. An FS to determine the best methods to remediate the area will be conducted as part of the assessment.

Remediation will consist of development and execution of a Remedial Action Plan based on results obtained during the assessment phase of the project. This process includes review and approval by EPA and CDH, followed by a ROD, release to the public, and implementation of the plan.

During April 1992, IHSS 122, the Underground Concrete Tank, was deleted from OU 13 and added to OU 9 as part of a IHSS realignment pursuant to Part 32, Paragraph 191 (Additional Work or Modification to Work) of the IAG. This change was recommended by DOE in the OU 9 Phase I RFI/RI Work Plan approved by CDH and EPA in April 1992.

Scope of Work Changes This Period

Fifty-four surface soil samples were included in the Stage I sampling plan.

Technical Approach Changes This Peiod

None

IAG Milestone Accomplishments

Submit Draft Phase I RFI/RI Work Plan	15 May 92
Submit Final Phase I RFI/ RI Work Plan	12 Oct 92

November Work Activity Status

The OU 13 Final Phase I RFI/RI Work Plan was submitted to the agencies per the IAG scheduled milestone date of October 12, 1992. However, the Work Plan was not approved pending the resolution of two major issues: (1) Settlement of the ARARs/Chemical Benchmark Issues; (2) Approval of a more comprehensive surficial soils component to the FSP.

These issues are major and will entail considerable effort and time to resolve. Progress was made at two meetings held the week ending November 13, 1992, on the settlement of the ARARs/Chemical Benchmark issues. Representatives from CDH, Colorado's Office of the Attorney General (CAG), DOE, EPA and EG&G were present. The status of the Benchmark tables were discussed in detail. Comments on the Work Plan indicate that the CAG's position is that the Benchmark tables will be used to establish the data quality objectives (DQO) analytic detection limit. EPA did not agree with the CAG's comments; comments from EPA on the Work Plan were received on November 18, 1992.

Another meeting was held on November 13, 1992, with representatives from the Work Plan subcontractor to discuss expectations regarding the updating of the Benchmark tables. The goal is to have a corrected table delivered to the agencies as soon as possible.

Approval of a more comprehensive surficial soils component to the FSP is under discussion because it is not required in the IAG and is not budgeted. The Work Plan contained 54 surface soil samples, which was sufficient to do a baseline risk assessment; however, the agencies are requesting a more comprehensive sampling plan which would increase the number of samples to more than 180.

Planned Work for December

Resolution of regulatory agency comments on the Work Plan
Coordination of field work with industrial area OUs.
A revised benchmark table should be available by December 18, 1992.
Rebaselining the OU 13 budget.

Problems

None

Open Items

Coordination of RI field work with the field work schedule for the Industrial Area OUs (8, 9, 10, 12, 13, 14, and 15) is under review.

2.14 OU 14 - RADIOACTIVE SITES

Work at the "Radioactive Sites" involves the assessment and remediation of eight IHSSs: Radioactive Site - 700 Area Site #1 and Site #2 (IHSS 131); Radioactive Soil Burial - Building 334 Parking Lot and Soil Dump Area (IHSSs 156.1); Building 444 Parking Lot (IHSS 160) and Building 664 (IHSS 161); and Radioactive Site - 700 Area Site #2 (IHSS 162); and Radioactive Sites - 800 Area which includes the Concrete Slab, Building 886 Spills, and the Building 889 Storage Pad (IHSSs 164.1, 164.2, and 164.3). In 1991, one of two Soil Dump Area IHSSs (156.2) was deleted from OU 14 and added to OU 6.

Assessment will consist of preparing a Phase I RFI/RI Work Plan, which will include both an EE and an HHRA. After implementation of this work plan, fieldwork and sample analysis will be conducted, data will be analyzed, and the Phase I RI Report will be prepared. An FS to determine the best methods to remediate the area will be conducted as a subsequent phase to the assessment phase.

Remediation will consist of development and execution of a Remedial Action Plan based on results obtained during the assessment phase and feasibility study of the project. This process includes review and approval by EPA and CDH, followed by a ROD, release to the public, and implementation of the plan.

Scope of Work Changes This Period	None	
Technical Approach Changes This Period	None	
IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work Plan Submit Final Phase I RFI/RI Work Plan	26 Jun 92 19 Oct 92
November Work Activity Status	A letter was received on November 16, 1992 from CDH recommending approval for the Final Phase I RFI/RI Work Plan for OU 14. An EPA letter dated November 19, 1992, withholds approval of the Work Plan pending acceptable scope and schedule for the industrial area.	
Planned Work for December	Integration of OU 14 non-intrusive field work into a work package incorporating OUs 8, 9, 10, 12, 13, and 14.	
Problems	None	
Open Items	Coordination of RI field work with the field work schedule for the Industrial Area OUs (8, 9, 10, 12, 13, 14, and 15) is under review.	

2.15 OU 15 - INSIDE BUILDING CLOSURES

OU 15 is composed of six IHSSs: Building 881 Drum Storage Area; Building 865 Drum Storage Area; Building 883 Drum Storage Area; Unit 45, Original Uranium Chip Roaster; Unit 26, Building 881 Drum Storage; and Unit 32, Building 881 - Cyanide Bench Scale Treatment. OU 15 will undergo RCRA closure of all IHSSs. The six IHSSs are currently listed as RCRA interim status units. Closure Plans for the facilities were submitted to CDH in 1988 and again in 1989. The major activity proposed is characterization and decontamination, if applicable, of the concrete floors at the indoor facilities. Drums and dumpsters containing solids and liquids were stored at these facilities. Types of waste included oils, coolants and solvents containing chlorinated hydrocarbons (RCRA F001 and F002 wastes) and waste paints and waste metals contaminated with solvents. Hazardous constituents include chlorinated solvents, beryllium, and uranium.

During April 1992, IHSS 215, Unit 55.13-Tank T-40, was deleted from OU 15 and added to OU 9 as part of an IHSS realignment pursuant to Part 32, Paragraph 191 (Additional Work or Modification to Work) of the IAG. This change was recommended by DOE in the OU 9 Phase I RFI/RI Work Plan approved by CDH and EPA in April 1992.

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Phase I RFI/RI Work Plan	01 Jun 92
Submit Final Phase I RFI/RI Work Plan	26 Oct 92

November Work Activity Status

RFP is awaiting comment from EPA and CDH on the Final Phase I RFI/RI Work Plan submitted on October 26, 1992, the IAG milestone date.

The procurement process started for implementation of the OU 15 Phase I RFI/RI Work Plan.

The inside buildings tour of OU 15 IHSSs conducted on November 11, 1992, was attended by CDH, DOE, and EG&G representatives. EPA toured the OU 15 IHSSs on November 4, 1992. The tours were held to familiarize OU 15 personnel with the physical setting of the IHSSs.

Planned Work for December

Continue the procurement process for implementation of the OU 15 Work Plan.

Problems

None

Open Items

Coordination of RI field work with the field work schedule for the Industrial Area OUs (8, 9, 10, 12, 13, 14, and 15) is under review.

2.16 OU 16 - LOW PRIORITY SITES

This assessment activity consists of preparing a No Further Action Justification Document for seven IHSSs, including: Solvent Spill, Antifreeze Discharge, Steam Condensate Leaks, Nickel Carbonyl Disposal, Water Treatment Plant Backwash Pond, and Scrap Metal Sites. In addition, the draft document must be reviewed, comments resolved, and the draft finalized. EPA will then review the final draft No Further Action Justification Document.

Scope of Work Changes This Period	None
Technical Approach Changes This Period	None
IAG Milestone Accomplishments	Submit Draft No Further Action Justification Document 04 Mar 92 Submit Final No Further Action Justification Document 30 July 92
November Work Activity Status	The Final No Further Action Justification Document for OU 16 is being reviewed for approval by EPA and CDH. Further activities are not planned for the current fiscal year.
Planned Work for December	None
Problems	None
Open Items	None

2.17 SITEWIDE ACTIVITIES

Sitewide activities include several tasks that encompass a wide variety of plans, procedures, reports, studies, and other activities required by the IAG and that apply to RFP environmental restoration activities in general. The activities include, but are not limited to, the HSP, a Sampling and Analysis Plan, a Plan for Prevention of Contaminant Dispersion, the Community Relations Plan, the Discharge Limits for Radionuclides Work Plan, Treatability Study deliverables, the Background Study Plan, Administrative Record, State Response (support for CDH oversight), Historical Release Report, Operations Management, Decontamination Facilities, contractor yard support, ER waste handling facilities, geologic characterization, hydrogeologic characterization, and ground water monitoring.

Scope of Work Changes This Period

None

Technical Approach Changes This Peiod

None

IAG Milestone Accomplishments

Submit Draft Background Study Report (Water)	15 Dec 89
Submit Draft Background Study Report (Soils)	15 Dec 89
Submit Draft Community Survey Plan	23 Jan 90
Submit Final Community Survey Plan	22 Mar 90
Submit Draft HSP	15 Aug 90
Submit Draft Quality Assurance Project Plan (QAPP)	29 Aug 90
Submit Draft SOPs	29 Aug 90
Submit Draft Plan for Prevention of Contaminant Dispersion (PPCD)	19 Sep 90
Submit Draft Treatability Study Plan	21 Sep 90
Submit Draft Community Relations Plan (CRP)	01 Nov 90
Submit Final HSP	12 Nov 90
Submit Revised Background Study Report	21 Dec 90
Submit Final CRP	22 Jan 91
Submit Final QAPP	01 Mar 91
Submit Final SOPs	01 Mar 91
Submit Draft Discharge Limits Radionuclides Plan (DLRP)	05 Apr 91
Submit CRP RS	21 Jun 91
Submit Final Treatability Study Plan	03 Jun 91
Submit Final PPCD	22 Jul 91
Submit Final DLRP	16 Sep 91
Submit Final PPCD and RS	25 Nov 91
Submit Draft Historical Release Report (HRR)	08 Jan 92
Submit RS for DLRP	31 Jan 92
Submit Final HRR	03 Jun 92

November Work Activity Status

ARARs. A meeting with DOE, EPA, CDH, and EG&G was held on November 10, 1992, to discuss the status of ARARs. Specific attention was given to the conditional approval status currently given to Work Plans for OUs 3 through 15. Conditional approval for these Work Plans includes resolution of regulatory agency comments regarding accuracy of information presented in the Benchmark Table as well as complete-

ness. Through discussion, it became apparent that the regulatory agencies are concerned not only with accuracy and completeness, but application of the Benchmark Tables for establishing analytical protocols. The matter was resolved by EG&G committing to prepare:

1. A revised Benchmark Table that addresses regulatory agency comments regarding accuracy and completeness.

2. A plan that describes how EG&G will use the Benchmark Table in a "managed approach" to site characterization.

Additional discussion included CDH pointing out that if ARARs are established at concentrations below the analytical Practical Quantitation Limit (PQL), then DOE will have to obtain an ARAR waiver to establish the PQL as the cleanup criteria.

Finally, it was decided that additional meetings on ARARs issues would be fruitful.

Sitewide Treatability Studies. The first draft of the Annual Report on Treatability Studies was completed on November 6, 1992. The final draft is scheduled to be delivered to the regulatory agencies on March 8, 1993. The report will contain a section from the radionuclide discharge control plan, a section containing information derived from the Rocky Flats Environmental Database System (RFEDS), ARARs data, and a section containing lessons-learned from OU-specific treatability studies, in addition to other data.

Quarterly Review Meeting with EPA/CDH. The quarterly review meeting was held on November 12, 1992, at the Denver West Office Park in Golden. Attending were EPA, DOE and EG&G representatives. The CDH representative was unable to attend. Discussion at this meeting included review of the status of each of the site wide projects; review of the FY93 budget and the limitations imposed on the sitewide program due to budgeting constraints; and a discussion of the FY93 sitewide project priorities.

EPA requested that when the sitewide work package budget is approved and final, another meeting be scheduled to discuss in detail which projects are impacted and the project schedule for the remainder of the year.

Soil Washing Demonstration. Nuclear Remediation Technologies (NRT), a subsidiary of General Atomics located in San Diego, has proposed to test their proprietary soil washing process on a sample of RFP plutonium contaminated soil. The test work will be carried out with no charge to RFP other than soil sample shipping costs and labor to witness the test work.

The soil sample was obtained on November 9, 1992, and held in storage until the results of the radionuclide screening were received. These results showed that the soil sample is low enough to allow shipment without any restriction. The sample was ready for shipment to California on November 13, 1992. The schedule for the test work is being arranged with NRT.

Bioremediation. Both EPA and CDH have requested that RFP consider bioremediation as a potential technology for use at RFP. Since the topic is so broad, RFP is attempting to narrow the scope to items that are applicable to Rocky Flats. The literature review for bioremediation continues with extensive computer searches for key articles and reviews.

Oxidation/Reduction. Oxidation/Reduction is one of the technologies identified in the Final Site Wide Treatability Study Plan for further test work and evaluation to determine how effectively it might remove various contaminants from surface and ground water at Rocky Flats. The final Work Plan began DOE review on November 13, 1992. Actual test work for the project is scheduled to begin in the spring of 1993.

Observations on the Occurrence of Plutonium and Americium in Ground and Surface Waters. This report requested by EPA and CDH is an attempt to analyze historical data from around Rocky Flats and determine if there is evidence for Pu and Am occurring in RFP waters.

The subcontractor is preparing the final draft version that incorporates all comments. The final version will be completed by December 4, 1992, for submittal to the agencies.

Drum Management. As of the end of November there were 1,470 55-gallon drums and 914 30-gallon drums for a total of 2,384 environmental drums in the field.

Quality Assurance. The Environmental Restoration Management (ERM) Quality Assurance Project Plan (QAPjP) was submitted to RFP Standards, Audits and Assurance's Site Quality Assurance (SQA) for review and comment.

The DOE Quality Assurance Division has informed the Environmental Quality Support (EQS) division of the initiation of a DOE Quality Assurance Audit. The audit is to begin the week of November 30 and will last approximately 2 weeks. This will be the second audit performed this month by site oversight organizations. RFP is in the process of initiating a self-evaluation to assess the adequacy of data integrity. This evaluation will encompass the process from sample collection through data validation and the eventual entry into RFEDS.

Planned Work for December	Continue work on the Annual Treatability Study Report which is due March 8, 1993. Continue ongoing Community Relations activities. Continue program improvements through Quality Assurance audits and assessments. Continue work on the ARARs benchmark table.
Problems	None
Open Items	None

SECTION 3. ROUTINE ENVIRONMENTAL MONITORING

The following generalized sampling schedule for routine environmental monitoring is provided as requested in Section 210 of the IAG. Detailed quarterly monitoring schedules are prepared in advance and are available to EPA and CDH upon request from the Environmental Management Department and EG&G Rocky Flats, Inc. The schedules are lengthy; therefore, they are not reproduced here. An EPA- or State-authorized representative may make arrangements to observe fieldwork and to obtain split or duplicate samples.

3.1 SURFACE WATER AND SEDIMENTS

- Each of the Surface Water Stations (approximately 20 stations) is sampled quarterly.
- Each of the Sediment Stations (approximately 10 stations) is sampled quarterly.
- Each surface water and sediment sample is analyzed for the following parameters:

CLP TCL VOAs
Field Parameters
Dissolved Oxygen
Radionuclides
TDS/TSS
Nutrients
Metals CLP TAL and Non-TAL
Specific Conductivity
Major Anions
Termperature
pH

3.2 SOILS

- Each of the Soil Stations (located at 1- and 2-mile radii from the plant center) is sampled annually.
- Each soil sample is analyzed for plutonium and americium.

3.3 GROUND WATER

A total of 410 ground water stations is sampled quarterly; this includes alluvial wells, bedrock wells, and pre-1986 wells. Approximately one-third of the wells are monitored monthly for water levels.

Each ground water sample is analyzed for CLP, TCL, VOAs, TAL, and metals, as well as the following parameters:

Radiochemical Parameters	Inorganic Parameters	Field Parameters
Gross Alpha	Nitrate/Nitrite	DO
Gross Beta	Total Phosphorous	Specific Conductivity
Plutonium	Ortho-Phosphate	Temperature
Americium	Ammonia	Turbidity
Strontium	TDS	pH
Tritium	Fluorine	
Uranium	Sulfate	
Cesium	Carbonate	
	Bicarbonate	

Radiochemical Parameters	Inorganic Parameters	Field Parameters
	TSS	
	Total CLP Metals & additional metals	
	Dissolved CLP & additional metals	
	Cyanide	
	CLP Volatile Organic Compounds	

SECTION 4. CONTRACTOR/SUBCONTRACTOR IDENTIFICATION

Contractors and subcontractors being used on the RFP ER Program and the work they are performing are identified on the following list as required by paragraph 13 of the IAG.

OU	Project	Subcontractor	Sub-Subcontractor	Work Description	Start Date
1	Assessment	Ebasco	Dames & Moore Stoller Corp.	OU 1 RFI/RI field work (drilling, well development/ completion, sampling) and RI report., and CMS/FS report	Apr 91
1	Remediation	Bruner		OU 1 IRA ion exchange system	Feb 91
1	Remediation	E.T. LaFore		Installation of Phase II-A treatment system equipment for OU 1 IRA	Jun 91
1	Remediation	IT Corporation	CH2MHill/OMT	B-891 Treatment System Operations	
1	Remediation	Jennison		Construct Phase II-B French drain at OU 1 IRA	Aug 91
1	Remediation	P.S.L		OU 1 IRA UV/Peroxide System	Aug 91
2	Assessment	Woodward-Clyde	Ogden	OU 2 RFI/RI Work Plan (alluvial and bedrock) and RI field work (drilling, well completion/development)	Sep 90
2	Assessment	Ebasco	S.M. Stoller Corp.	Environmental Evaluation	Feb 91
2	Remediation	Stearns Rogers		Performance Specification for Chemical precipitation/membrane/filtration system for South Walnut Creek Phase of OU 2 IRA	Jun 91
2	Remediation	TBD		Mfg/Install chemical precipitation/ filtration unit for South Walnut Creek Phase of OU 2 IRA	Dec 91
3	Assessment	IT Corporation	CH2M Hill	OU 3 Field Work and RI Report	Apr 92
3	Assessment	IT Corporation	USGS	OU 3 Reservoir Sediment Sampling and Report	Aug 92
3	Assessment	MRI		Wind Tunnel/Soil Resuspension Study	Aug 92
4	Assessment	Applied Environment		Implement the Phase I RFI/RI Work Plan, includes drilling, sampling radiation surveys, etc.	Aug 92

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OU	Project	Subcontractor	Sub-Subcontractor	Work Description	Start Date
5	Assessment	ASI	Dames & Moore Blackhawk Geoscience Walsh & Assoc. Fugro Geosciences Lagne Envir. Service Utility Mgmt. Service S.M. Stoller Adv. Terra Testing	Implementation of OU 5 Work Plan (excluding EE)	Jun 92
5	Assessment	S.M. Stoller		Implementation of EE section of OU 5 Work Plan	Sep 92
6	Assessment	Woodward Clyde	Lane, Ogden Geo Environmental	OU 6 RFI/RI Work Plan and Quality Assurance Addendum	Feb 90
6	Assessment	S.M. Stoller		EE	Sep 92
7	Assessment	S.M. Stoller	Walsh & Assoc.	OU 7 RFI/RI Work Plan including EE Plan and QA Addendum	Apr 90
11	Assessment			OU 11 RFI/RI Work Plan including EE Plan and QA Addendum	Oct. 91
15	Assessment	S.M. Stoller		OU 15 RFI/RI Work Plan	
SW	HRR	IT Corporation	Doty & Assoc.	Prepare HRR	Feb 91
SW	PCB Asse		Stoller Corporation	Prepare PCB Assessment Report	Jan 92
SW	Adm. Record	Qua		Maintain IAG Adminstrative Record	Oct 90
SW	Geo. Char.	ASI		Geologic Characterization, Data Base, and graphics	Feb 90
SW	Monitoring	IT Co ation		Analytical Services for ground wate surface water, and sed ent	Jul 90
SW	PPCD	Ebasco		PPCD	Jun 90
SW	QA	SAIC		QA program ations oversight	Dec 90
PM	Supp	Ebasco	Corporation	Program Management Support	Feb 90

ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirements
BOA	Basic Ordering Agreement
BRAP	Baseline Risk Assessment Plan
CAD	Corrective Active Decision
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLP	Contract Laboratory Program
CMS	Corrective Measures Study
CRP	Community Relations Plan
D&D	Decontamination and Disposition
DLRP	Discharge Limits Radionuclides Plan
DOE	Department of Energy
E&WM	Environmental and Waste Management
EE	Environmental Evaluation
EPA	Environmental Protection Agency
ER	Environmental Restoration
FS	Feasibility Study
FSP	Field Study Plan
FTU	Field Treatability Unit
GAC	Granular Activated Carbon
gpm	Gallons per minute
HHRA	Human Health Risk Assessment
HPGe	High Purity Germanium Survey
HRR	Historical Release Report
HSP	Health and Safety Plan
IAG	Inter-Agency Agreement
IHSS	Individual Hazardous Substance Site
IM	Interim Measure
IRA	Interim Remedial Action
IRAP	Interim Remedial Action Plan
ITS	Interceptor Trench System
IWCP	Integrated Work Control Package
LL	Low-level
MTS	Master Task Subcontract
NEPA	National Environmental Policy Act
NTS	Nevada Test Site
OPWL	Original Process Waste Line
OU	Operable Unit
PA	Protected Area
pCi/g	Picocuries per gram
PPCD	Plan for Prevention of Contaminant Dispersion
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act
RFEDS	Rocky Flats Environmental Database System
RFI	RCRA Facilities Investigation
RFP	Rocky Flats Plant
RI	Remedial Investigation
ROD	Record of Decision
RS	Responsiveness Summary

SO	Systems Operation
SOP	Standard Operating Procedure
SOW	Statement of Work
TAL	Target Analyte List
TCL	Target Compound List
TDS	Total Dissolved Solids
TM	Technical Memorandum
TRG	Technical Review Group
TRU	Transuranic
TSS	Total Suspended Solids
VOA	Volatile Organic Analyte
VOC	Volatile Organic Compound